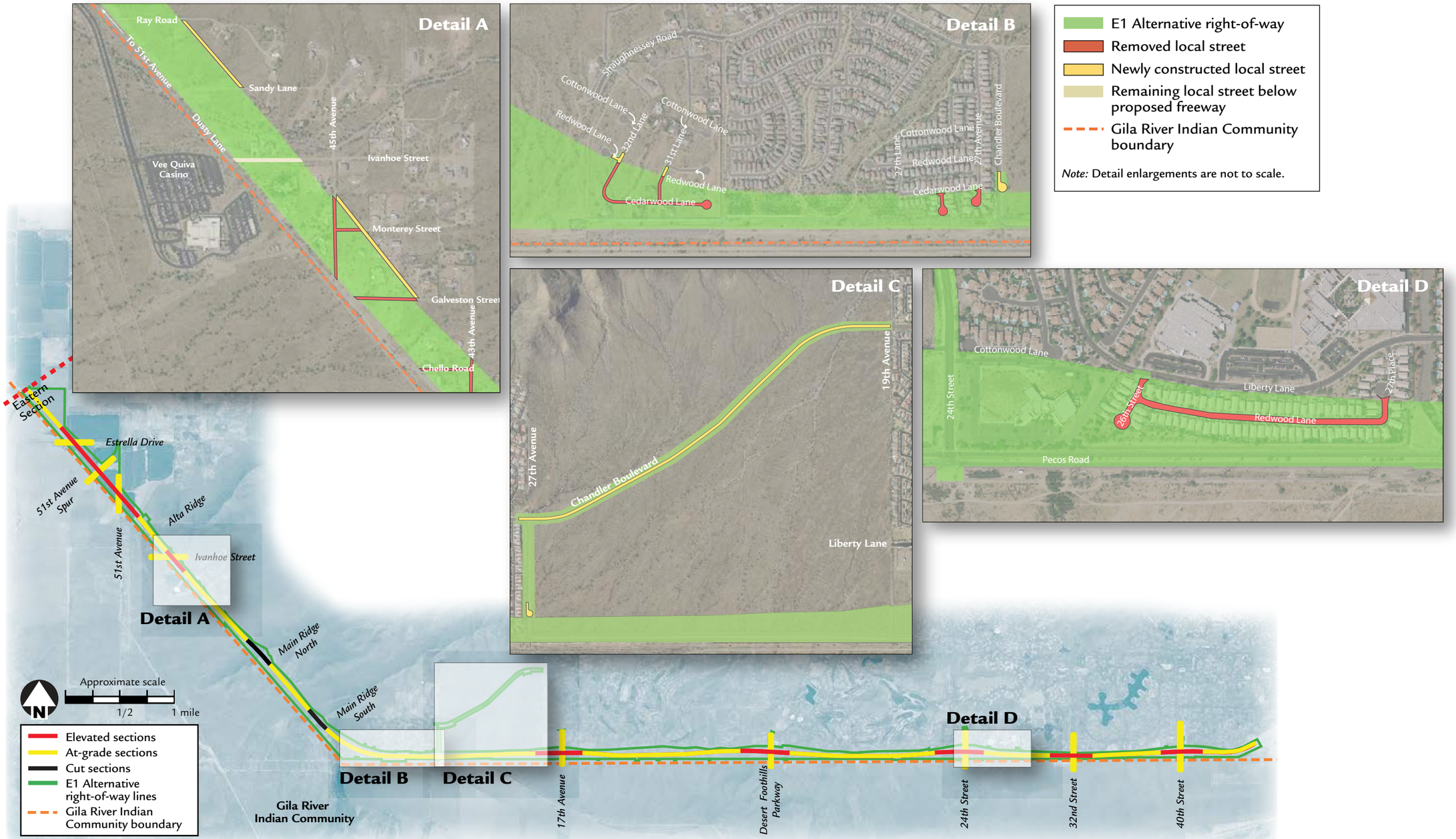
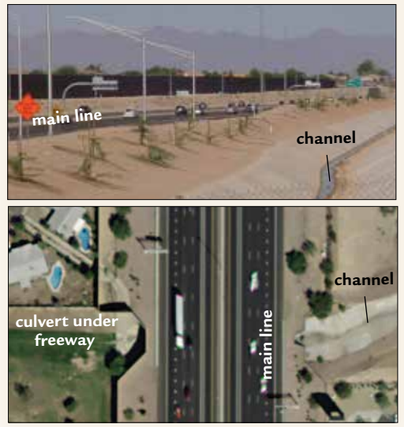
Figure 3-33 Local Street Realignments, E1 Alternative (Preferred Alternative), Eastern Section



The E1 Alternative would affect the existing local street network. Approaches for reconfiguring the local street network include removing streets, constructing new streets, constructing the proposed freeway over existing streets, or dead-ending existing streets. Final design of local streets would be coordinated with emergency service providers, local jurisdictions, and other appropriate agencies and would continue through final design stages.

What types of drainage features are included in the R/W?

The drainage features typical of all the action alternatives and typical of freeways in the region include culverts under the freeway, parallel channels, and basins as represented in the photos below.



The proposed action would be readily accessible to and usable by individuals with disabilities and would comply with the applicable provisions set forth in the Americans with Disabilities Act. For example, the reconstruction and construction of new curb ramps and sidewalks at proposed service traffic interchanges would satisfy the relevant requirements.

Typical Freeway Sections

Figure 3-34 depicts typical freeway sections for all action alternatives. The freeway main line would have three 12-foot-wide general purpose lanes and one HOV lane in each direction, separated by a median barrier with left shoulders adjacent.

Auxiliary Lanes

An auxiliary lane is a lane located to the outside of freeway through-lanes (see sidebar on the next page). Located between successive on- and off-ramps associated with service traffic interchanges, auxiliary lanes are used by vehicles entering and exiting the freeway main line. Common to Regional Freeway and Highway System segments, auxiliary lanes reduce the degree of conflict between traffic merging onto and exiting a freeway and minimize disruption to on- and off-ramps. By reducing conflict, auxiliary lanes typically improve overall traffic performance. Auxiliary lanes would be 12 feet wide and maintain a 12-foot-wide right shoulder, similar to the freeway main line. Auxiliary lanes would be used where warranted in accordance with ADOT's *Interim Auxiliary Lane Design Guidelines* (1996). Impacts associated with auxiliary lanes are accounted for in the analysis.

TSM/TDM Strategies

Applicable elements of TSM and TDM would be incorporated into the design and operation of any action alternative. Table 3-2, on page 3-5, describes such elements.

Traffic Control Devices and Illumination

Signs, lighting, traffic signals, and pavement marking would be designed to meet current guidelines and standards referenced under the section, *Design Criteria* on page 3-59, as well as in the *Manual on Uniform Traffic Control Devices for Streets and Highways* (FHWA 2009a). Any freeway lighting installed would be designed to reduce illumination spillover onto sensitive light receptors (such as residential and natural areas). Lighting needs would also include underdeck lighting on bridges where appropriate. The use of municipal or ADOT standard traffic control devices and illumination at arterial streets would be determined during the design phase.

Earthwork

To construct the proposed action, material would either need to be removed (cut) from the existing grade or added (fill) to the existing grade to accommodate the vertical alignments of the action alternatives. During design, efforts would be made to optimize the freeway profile to minimize the potential deficit (borrow). Earthwork quantities for each action alternative are presented in Figure 3-35. The sidebar on page 3-41 pertaining to rolling profile provides additional information regarding this topic.

Drainage

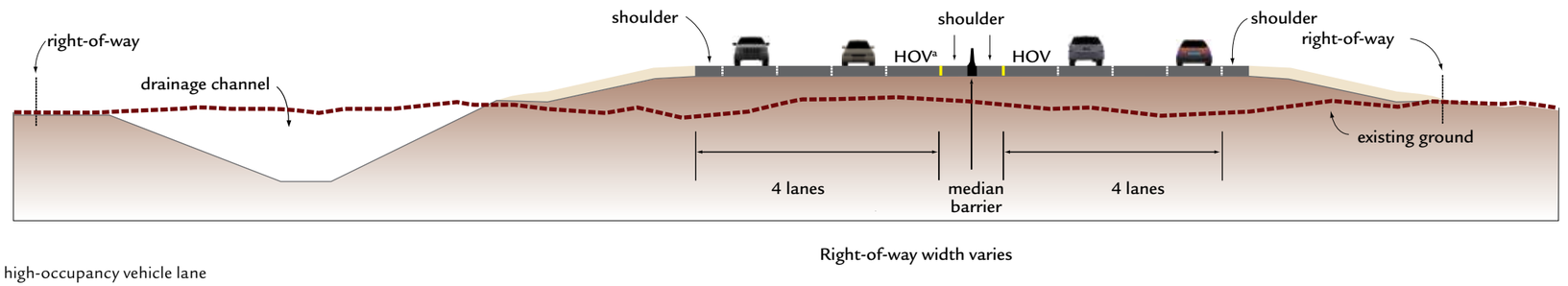
Drainage structures would be designed to meet standards and guidelines in use by ADOT, FHWA, and the Flood Control District of Maricopa County (FCDMC) as set forth in:

- *Roadway Design Guidelines* (ADOT 2012a)
- *Standard Specifications for Road and Bridge Construction* (ADOT 2008)
- *Drainage Design Manual for Maricopa County, Arizona: Hydrology* (FCDMC 2009)
- *Drainage Design Manual for Maricopa County, Arizona: Hydraulics* (FCDMC 2003)
- municipal standards as appropriate

Coordination between ADOT and such agencies as applicable—including the City of Phoenix, FCDMC, the Bureau of Reclamation, the Bureau of Land Management (BLM), the Natural Resources Conservation Service, the Community, and local irrigation districts—regarding drainage canal crossings within the Study Area would continue during the design phase and construction. Arterial cross streets would be designed according to the standards of the relevant jurisdictions, in coordination with their staff, during the design phase.

Where appropriate, the defined R/W includes a drainage channel (see Figure 3-34 and the sidebar on this page) and drainage basins. Final configuration of drainage features would be determined during the design phase. The size and location of drainage facilities could change based on additional design efforts, adjacent development plans, and changes in rainfall or drainage patterns.

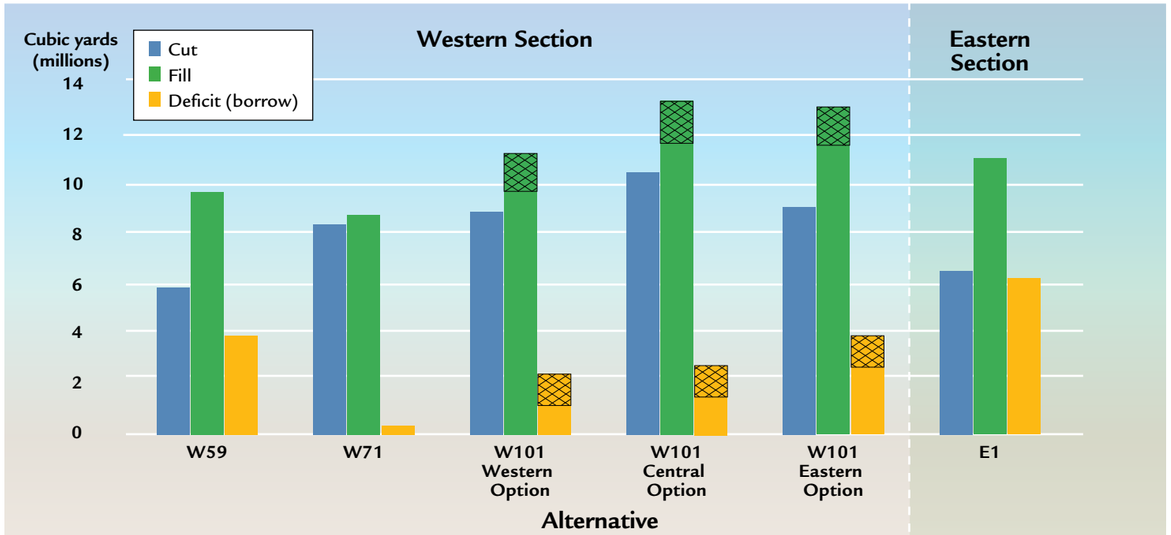
Figure 3-34 Typical Eight-lane Freeway Section



[a] high-occupancy vehicle lane

The freeway cross section would be typical of those found throughout the region's freeways. Regional consistency in lane geometry improves driver expectancy and safety and can contribute to enhanced traffic operation as a result. Right-of-way width varies at specific locations depending on presence of noise walls, drainage basins or channels, retaining walls, etc.

Figure 3-35 Earthwork Quantities, Action Alternatives, Western and Eastern Sections



Note: Cross-hatched area represents the range of quantities associated with the additional earthwork to construct the Full Reconstruction Option of the W101 Alternative and its alignment options at the system traffic interchange with Interstate 10.

A cost-effective goal in constructing the freeway would be to balance the cut and fill along the project. The estimated quantities shown in the figure are not atypical of freeway projects of this magnitude.

Pavement Treatment

According to ADOT policy, new freeways constructed in the MAG region will be overlaid with rubberized asphalt. See the section, *Noise*, beginning on page 4-88, for more information regarding the use of rubberized asphalt.

Planning-level Cost Estimates

Figure 3-36 summarizes overall planning-level cost estimates for each action alternative. When the Western and Eastern Sections are combined, total freeway costs would range from $2 billion to $2.6 billion (in 2012 dollars), including design, R/W acquisition, and construction. Costs would be updated during the design phase and reflected in the RTP update process. Updating costs is critical to account for cost fluctuations for materials, land acquisition, and design refinements.

Before the record of decision (ROD) is published, a formal cost estimate review will be conducted in accordance with Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users guidelines. The official review that will occur between publication of the FEIS and ROD will determine a probability and range for the cost of the Selected Alternative (should it be an action alternative). Additionally, the review will escalate the current dollar estimates to provide the future cost in the expected year of expenditure.

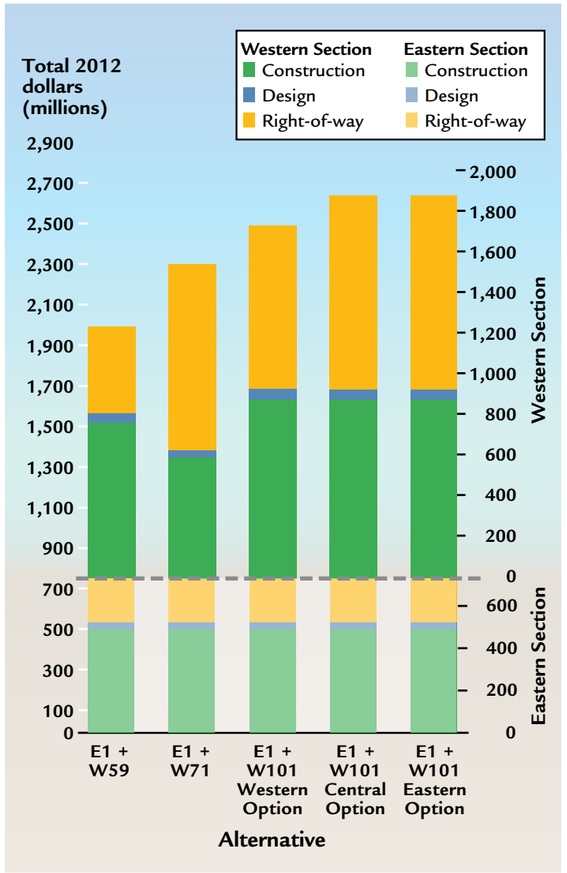
Construction Sequencing and Schedule

For a project such as the proposed action, typically upon completion of the EIS process, and if the Selected Alternative is an action alternative, ADOT would begin the design phase. Upon completion of the initial design phase, the final R/W acquisition process and other "early construction" tasks such as utility relocations would begin. Also, the corridor would be divided into multiple final design segments to establish a construction implementation plan. The termini of these segments would be determined through consideration of several factors, including:

- ➤ traffic performance and continuity
- ➤ off-site drainage considerations
- ➤ impacts to residential areas
- ➤ earthwork management
- ➤ construction contract management

The construction implementation plan proposed in the current ADOT program would schedule construction of the corridor to begin at the I-10 (Papago Freeway) system traffic interchange and continue south to approximately Baseline Road. Additional construction would begin near the I-10 (Maricopa Freeway) system traffic interchange and continue along Pecos Road,

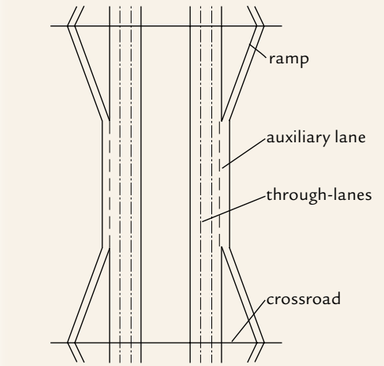
Figure 3-36 Planning-level Cost Estimates, Action Alternatives, Western and Eastern Sections



Right-of-way costs could nearly equal costs to construct the proposed action in some cases. Right-of-way costs are a reflection of the growth in the region.

What are auxiliary lanes?

Auxiliary lanes, typically located on the periphery of general through-lanes, facilitate drivers' access to or egress from through-lanes. Highway designers often place auxiliary lanes between successive on- and off-ramps associated with service traffic interchanges. In the graphic and photo shown below, an auxiliary lane is provided between the entrance and exit ramps to allow an extended area for safe acceleration or deceleration. This reduces the degree of potential conflict between through-traffic and travelers merging onto or exiting a freeway.



Source: Arizona Department of Transportation, 2010a

How Are Planning-level Cost Estimates Developed?

Estimating costs for a project like the proposed action is an iterative process as design evolves from conceptual design to final design plans and specifications to be used by the project builder. At the EIS process phase, estimates are typically based on conceptual design, meaning estimates will regularly be revisited and updated as design proceeds. Therefore, the planning-level estimates provided in the FEIS are based on design concepts for major items of the freeway and are expected to change over the life of the project as the design is refined. The assumptions used in developing the estimates were applied equally to all action alternatives studied in detail in the FEIS. For example:

- A contingency percentage was included in the estimates to account for changes as the project would evolve from concepts to construction and because of the uncertainty of future R/W and material costs.
- Estimates for each alternative studied in detail have received the same level of attention and been assigned the same parameters in the estimating process.
- R/W estimates include real property acquisition, relocation, and demolition.
- Construction estimates include major items such as earthwork, pavement, structures, drainage, walls, and traffic control.
- Design estimates are based on a percentage of total construction costs.
- Estimates include costs associated with implementation of mitigation measures as assumed by ADOT and FHWA at the FEIS stage (see *Summary* chapter and Chapter 4, *Affected Environment, Environmental Consequences, and Mitigation*).

through the South Mountains, and end at approximately 51st Avenue. Finally, these two reaches would be connected by constructing the remaining freeway segments between Baseline Road and 51st Avenue. The duration of construction under this typical design-bid-build process is anticipated to be 5 to 6 years. Construction sequencing and duration could change based on several factors, including funding availability, traffic volumes, coordination with other major freeway projects, earthwork balancing, utility relocation schedules, and regional priorities.

In summer 2013, ADOT received an unsolicited public-private partnership (P3) proposal to construct the South Mountain Freeway from a group of private companies. Constructing the freeway as a toll road was not considered in the proposal. A P3 is a contractual agreement between a public agency and a private sector entity that allows the private sector entity to have greater participation in building a transportation project. Using traditional project construction methods as described above, ADOT would bear all of the risks and responsibilities for a project. Under a P3, the private sector partner takes on some or all of the project's risks and responsibilities while gaining the opportunity to profit from more efficient construction methods.

The unsolicited proposal identified potential benefits to using a P3 to build the freeway:

- ➤ construct the entire corridor as one P3 project to reduce cost and duration of construction
- ➤ use private sector investment and financial solutions to maximize the use and allocation of limited public funds (with no tolling or user fees)
- ➤ offer flexibility to adapt to changes in the freeway concept (with no involvement in the environmental process or selection of the freeway alignment)
- ➤ provide significant subcontracting and job opportunities for local contractors to ensure the greatest benefit to the local economy and taxpayers

ADOT would continue to evaluate options for building the freeway. The ultimate approach to building the freeway would not affect potential impacts or proposed mitigation presented in the FEIS or ROD.

Enhancement Opportunities

Construction and operation of any of the action alternatives would create opportunities for ADOT and local jurisdictions to identify additional enhancements. Examples of enhancements are both procedural and project-specific. A procedural enhancement could include the engagement of select members of the public to participate in the design phase or through public art projects in the corridor. A project-specific example might be the result of excess R/W that may be suitable for other public infrastructure projects such as park-and-ride lots or bicycle/multiuse paths. During the design phase, ADOT, local municipalities, the Community, Valley Metro, and MAG would work together to identify and create enhancement opportunities. MAG policy would determine how enhancements would be funded.

TRAFFIC ANALYSIS

Traffic-related analysis has been previously presented for the comparison of the existing conditions and future conditions without a major transportation facility in the Study Area (see the section, *Need Based on Regional Transportation Demand and Existing and Projected Transportation System Capacity Deficiencies*, on page 1-13) as well as the comparison between future conditions with and without a major transportation facility in the Study Area (see the section, *Responsiveness of the Proposed Freeway to Purpose and Need Criteria*, on page 3-27). The following text expands on the analysis of future conditions by presenting the differentiating traffic-related characteristics among the alternatives studied in detail (No-Action Alternative and action alternatives). Because the E1 Alternative is the only action alternative in the Eastern Section, it is logical to assume that it will be common to each action alternative in the Western Section. Therefore, it is included within this discussion, from logical terminus to logical terminus.

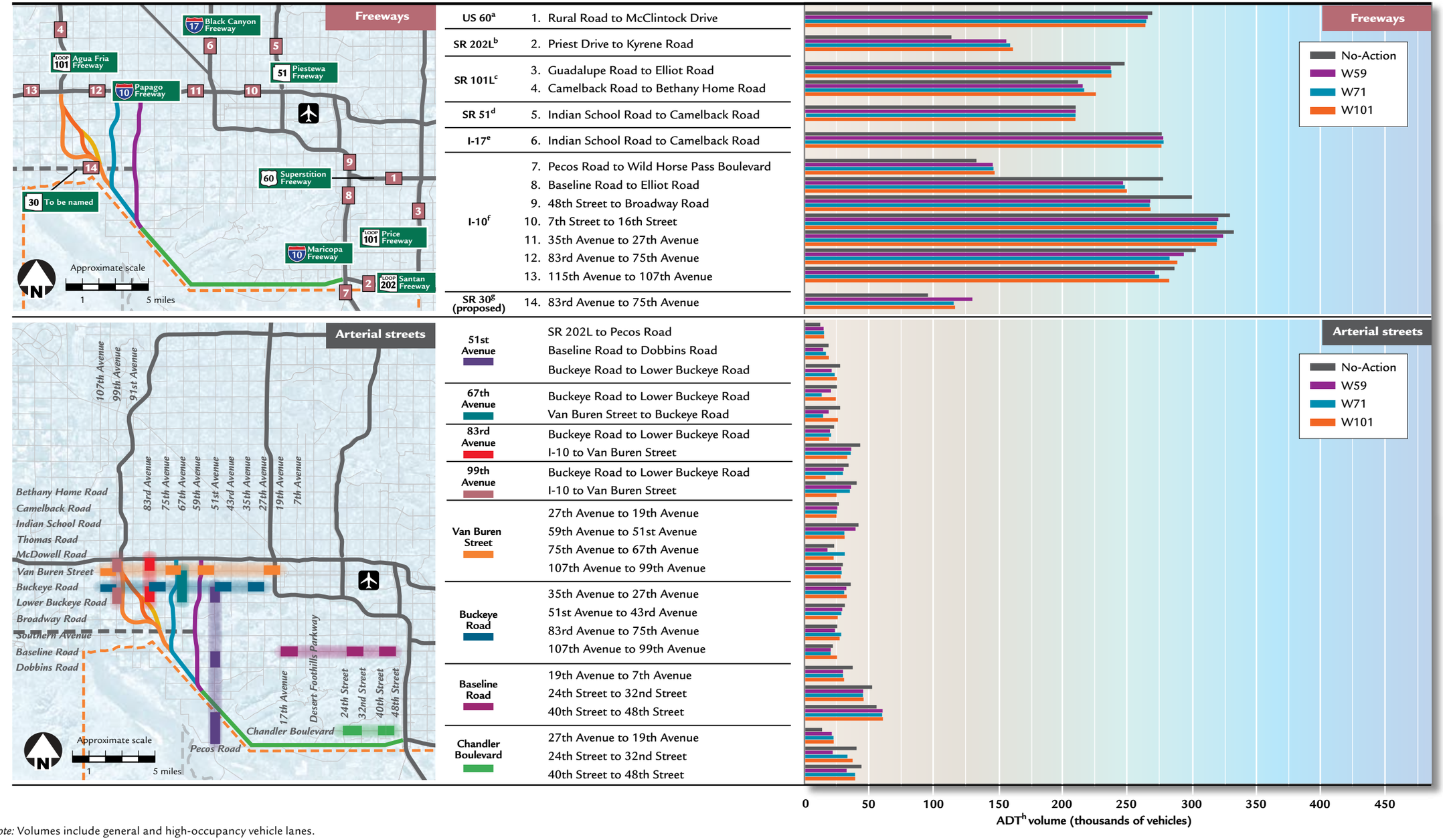
2035 Forecast Traffic Conditions in the Study Area and Immediate Surroundings

Figure 3-37 presents future ADT volumes for the No-Action Alternative and action alternatives for freeways and arterial streets in and around the Study Area.

When comparing traffic performance of the action alternatives with traffic performance under the No-Action Alternative, a number of intended outcomes can be observed:

- ➤ Nearly all segments of I-10 (Maricopa Freeway) between I-17 and SR 202L (Santan Freeway) would experience reduced traffic volumes with the action alternatives. The reduction would be approximately 32,000 vpd between Baseline and Elliot roads (see location 8 in Figure 3-37) and between 48th Street and Broadway Road (see location 9). The reduced volumes would result in better traffic conditions along this section of I-10.
- ➤ The action alternatives would provide a necessary link in the system, resulting in more desirable traffic distributions. With identification of the No-Action Alternative as the Selected Alternative, segments of SR 202L (Santan Freeway) and the proposed SR 30 adjacent to their connections with

Figure 3-37 Projected Traffic Volumes, Freeways and Arterial Streets, 2035



Note: Volumes include general and high-occupancy vehicle lanes.

[a] U.S. Route 60 [b] State Route 202L (Loop 202) [c] State Route 101L (Loop 101) [d] State Route 51 [e] Interstate 17 [f] Interstate 10 [g] State Route 30 [h] average daily traffic

Source: Maricopa Association of Governments, 2013c; extrapolated analysis

In most cases, representative segments of freeways and arterial streets would experience more daily traffic with the No-Action Alternative than with implementation of any of the action alternatives.

the proposed freeway would be underused. A six-lane freeway is intended to carry approximately 165,000 vpd. With the No-Action Alternative, these freeways would carry only 115,000 vpd or less.

- Overall, the action alternatives would result in lower traffic volumes on the arterial street network within and around the Study Area. This represents an intended outcome from the RTP—the redistribution of regional traffic from arterial streets to regional freeways.

When comparing traffic operational characteristics of the action alternatives, a number of differences can be observed:

- SR 101L (Agua Fria Freeway), between Camelback and Bethany Home roads (see location 4), would experience greater traffic volumes with implementation of the W101 Alternative than with any of the other action alternatives because of the direct connection between the freeways. This illustrates one of the strengths of the W101 Alternative—it would complete the loop system in the southwestern portion of the Phoenix metropolitan area without causing any overlap on I-10 (with the W59 or W71 Alternatives, drivers would have to get on I-10 to reach SR 101L).
- The proposed SR 30 would be used more with the W59 Alternative than would be the case with the W71 or W101 Alternatives (see location 14). Also, I-10 would experience a small decrease in traffic volumes between 115th and 107th avenues (see location 12) with the W59 Alternative. These points illustrate one of the benefits of the W59 Alternative: it would optimize the long-term system of freeways planned in the southwestern portion of the Phoenix metropolitan area. However, this benefit would not be realized until construction of SR 30 and additional portions of SR 303L. Both of these facilities remain in the RTP, but are currently programmed in the years beyond the current one-half cent sales tax funding horizon.

Additional discussion of how the differences in traffic volumes would affect traffic conditions on the adjacent freeway system can be found in the following sections.

2035 Forecast Traffic Performance, by Action Alternative

Figure 3-38 illustrates the forecast traffic volumes on the action alternatives. Figure 3-39 on page 3-65 illustrates the sections where the action alternatives would operate at LOS E or F, and for how long (see text box on page 1-14 regarding LOS). The mix of vehicles (i.e., passenger cars, light trucks, heavy trucks) would be the same regardless of alternative (see text box on page 3-64 regarding related topics).

Notable observations from this information include:

- In general, traffic volumes on the proposed freeway would not vary substantially among the action alternatives. One exception is the W101 Alternative, which would experience higher volumes approaching I-10 (Papago Freeway) because of traffic connecting directly to SR 101L (Agua Fria Freeway).
- The highest traffic volumes for the W59 and W71 Alternatives would be between Broadway Road and Southern Avenue, just south of the proposed SR 30 connection. The highest volumes for the W101 Alternative would be between the proposed SR 30 connection and I-10 (Papago Freeway).
- The traffic volumes in the Eastern Section would not vary substantially by alternative and would generally be near 130,000 vpd.
- During the morning commute, all of the action alternatives would experience some segments with less than 2 hours of LOS E or F conditions.
- During the evening commute, all of the action alternatives would experience some segments with less than 2 hours of LOS E or F conditions.

I-10 is heavily traveled through Arizona, and traffic projections indicate it will remain so. Three locations for a system traffic interchange with I-10 (Papago Freeway) are being considered in the Western Section of the Study Area: at 59th Avenue, 71st Avenue, and SR 101L. Operational considerations on I-10 would be a key component, therefore, in the identification of the Selected Alternative.

Figure 3-40 on page 3-66 illustrates the sections along I-10 that would operate at LOS E or F—and for how long—during the morning and evening commutes with action alternatives or the No-Action Alternative in 2035.

Notable observations from this information include:

- The No-Action Alternative would result in the greatest number of sections along I-10 that would operate at LOS E or F, and for the longest duration.
- When comparing the action alternatives during the morning commute, all would result in over 3 hours of LOS E or F on eastbound I-10 from 91st Avenue to I-17.
- During the evening commute, all of the action alternatives would result in over 3 hours of LOS E or F on westbound I-10 from I-17 to approximately 67th Avenue. On I-10 from 67th Avenue to SR 101L (Agua Fria Freeway), they would result in varying lengths of segments with between 2 to 3 hours and less than 2 hours of LOS E or F.
- The W71 and W101 Alternatives would provide the best access to destinations west and north of downtown Phoenix.
- As noted previously, I-10 traffic conditions would be greatly improved with construction of the proposed SR 30. Without construction of SR 30, however, the traffic conditions associated with any of the action alternatives would be worse than what are shown by this analysis.

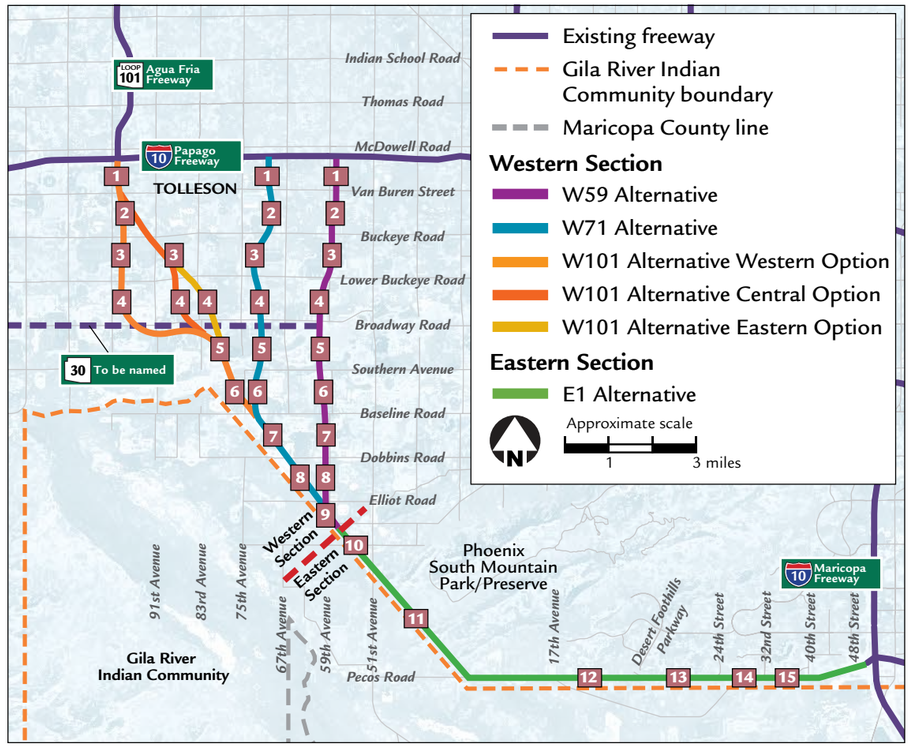
IDENTIFICATION OF A PREFERRED ALTERNATIVE

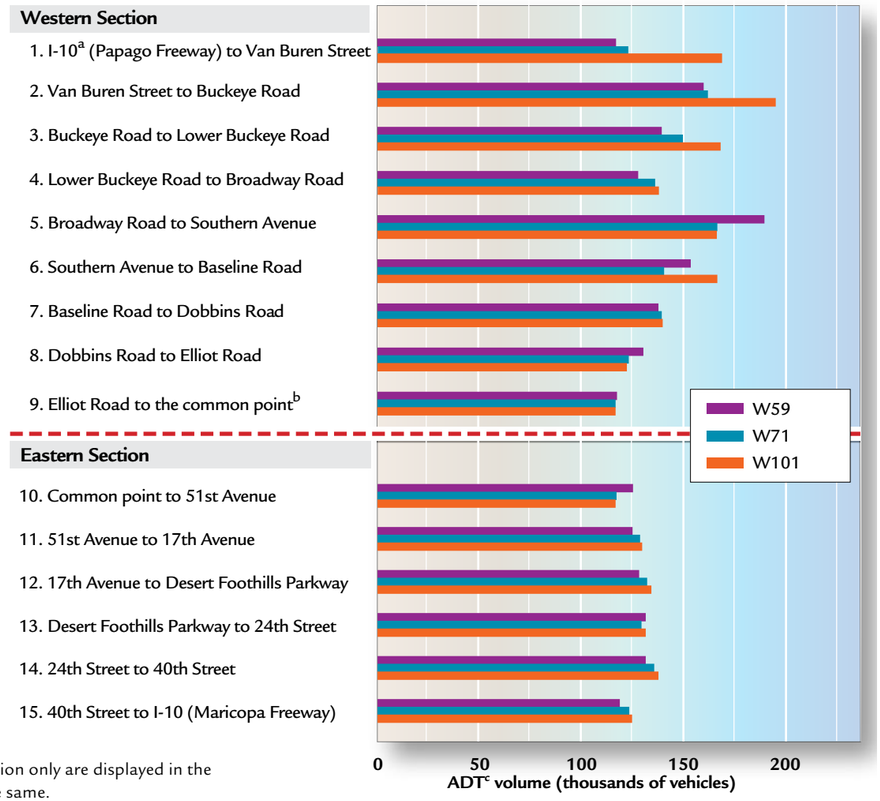
A preferred action alternative in the Western and Eastern Sections has been identified.

Identification of a Preferred Alternative in the Western Section (W59 Alternative)

This section summarizes the alternatives screening process and factors considered for the identification of a Preferred Alternative in the Western Section. It begins with the identification of a preliminary preferred alternative, the W55 Alternative, and then discusses the shift to the

Figure 3-38 Projected Traffic Volumes, Action Alternatives, 2035





Notes: Volumes include general and high-occupancy vehicle lanes. Traffic volumes for the W101 Alternative Western Option only are displayed in the bar graphs because the forecast traffic volumes for the three W101 Alternatives are projected to be essentially the same.

[a] Interstate 10 [b] See text box, *Creation of Western and Eastern Sections for the FEIS*, on page 3-8. [c] average daily traffic

Source: Maricopa Association of Governments, 2013c; extrapolated analysis

The daily traffic volumes forecast for any of the action alternatives would be comparatively equal and comparable to those of other freeways in the region. Information regarding the operational characteristics of traffic on the action alternatives can be found in Figure 3-39.

W59 Alternative. The concluding discussion focuses on the reasons that ADOT and FHWA identified the W59 Alternative, and not the W71 or W101 Alternative, as the Preferred Alternative in the Western Section. A side-by-side comparison of the factors used in the alternatives screening process for each action alternative is presented in Figure 3-41 on page 3-67. Additional detail regarding the impacts associated with each action alternative is presented in Chapter 4, *Affected Environment, Environmental Consequences, and Mitigation*, and is summarized in Table S-3, beginning on page S-10 of the *Summary* chapter.

In the summer of 2006, ADOT, with FHWA concurrence, identified the W55 Alternative as the preliminary preferred alternative in the Western Section. The public announcement in 2006 of the W55 Alternative as the preliminary preferred alternative prior to issuance of the DEIS was in response to increasing requests by officials of affected municipalities and land developers to allow better land planning in the rapidly developing Western Section. The announcement was grounded in the following context:

- Identification of the preliminary preferred alternative applied only to the Western Section of the proposed action corridor.
- Identification of the W55 Alternative as the preliminary preferred alternative in the Western Section was independent of a similar identification to be made regarding a Preferred Alternative in the Eastern Section.
- Because of outstanding issues at the time (2006) regarding Community coordination and the South Mountains, ADOT and FHWA elected to postpone a similar identification of a preliminary preferred alternative in the Eastern Section to continue Community coordination efforts.
- ADOT and FHWA have sought permission to develop alternatives on Community land. Coordination among ADOT, FHWA, and the Community regarding permission has occurred

3

Trucking in the MAG Region

Many public comments have been received suggesting the proposed action would function primarily as a bypass for trucks and as a portion of the CANAMEX Trade Corridor. Chapter 1, *Purpose and Need*, does not have a truck bypass as being a goal of the proposed action. To understand trucking in the MAG region, it is important to start by looking at trucking at the national level.

The efficient movement of goods and delivery of services are paramount to the vitality of the national economy, and the nation's (including Arizona's) freight system is based on trucking. Nationally, trucks transport 71 percent of the nation's freight by value (86 percent in Arizona [ADOT 2007b]), 69 percent by weight (76 percent in Arizona [ADOT 2010b]), and 40 percent by ton-miles (Margenta, Ford, and Dipo 2009). On average, for-hire truck shipments—freight carried by trucks for a fee—traveled 599 miles while private truck shipments—freight carried by a truck owned by the shipper—averaged 57 miles (Margenta, Ford, and Dipo 2009).

Approximately one-third of the nation's freight passes through Arizona, but more than 62 percent of that freight (as measured in freight tonnage—direct correlation to the actual number of trucks is not possible) simply passes through without creating any direct economic benefit to Arizona (MAG 2010c). Almost all trucks passing through Arizona either start or end their trips at the major ports in Southern California. Three interstate highways (Interstate 40, Interstate 15, and I-10) serve as the through-routes for nearly all this traffic.

Truck traffic *within* Arizona is associated with the import, export, and internal distribution of freight. Trucks using I-10 are likely headed to or from the greater Phoenix metropolitan area as a destination. Bringing freight into the state for eventual distribution throughout the state happens primarily in Maricopa County. Just under half of the outbound shipments (as measured in value—correlation to the actual number of trucks is unavailable) from Maricopa County are destined for other parts of Arizona (Arizona Department of Commerce 2004).

Freight terminals, warehouses, intermodal centers, and trucking companies concentrated in the Phoenix metropolitan area hold freight until it is ready for shipment to other parts of the state (MAG 2004). Trucking-related facilities include:

- 43 large freight terminals concentrated in western Phoenix, near the UPRR corridor and near Phoenix Sky Harbor International Airport
- 58 warehouses along the BNSF Railway Company and UPRR corridors, the I-10/I-17 corridors, and on the western side of Phoenix (between 35th and 59th avenues, south of I-10)
- 8 rail/truck intermodal facilities near the BNSF Railway Company and UPRR corridors
- primary trucking companies concentrated on the western side of Phoenix (south of I-10 between 35th and 75th avenues), near Phoenix Sky Harbor International Airport, and along the I-10 and I-17 corridors in central Phoenix

The freight centers are expected to grow (MAG 2004), with a highly concentrated area of transportation, distribution, and wholesale trade employment to occur in the existing I-10 commercial and industrial corridor from US 60/Phoenix Sky Harbor International Airport to SR 101L (Agua Fria Freeway).

While trucks dominate the freight market, they may also "appear" to dominate the nation's highways . . . but they do not. The following examples reflect this:

- Nationally, commercial trucks accounted for about 7 percent of highway VMT (FHWA 2004).
- On I-10 near the proposed action, trucks represent 8 percent of total traffic during peak travel periods and 15 percent in off-peak hours.
- Nationally, truck VMT doubled between 1980 and 2003, but commercial trucks' share of total highway VMT increased only 0.4 percent over the same period (U.S. Department of Transportation Bureau of Transportation Statistics 2006).
- In Arizona, the number of registered passenger cars and noncommercial vehicles increased from 1998 to 2010 by 46 percent, much faster than did registrations for commercial vehicles (35 percent) (ADOT 2010c).

So why would trucks "appear" to dominate the nation's highways? It is a difficult question to answer, but to drivers in passenger vehicles, trucks can be imposing:

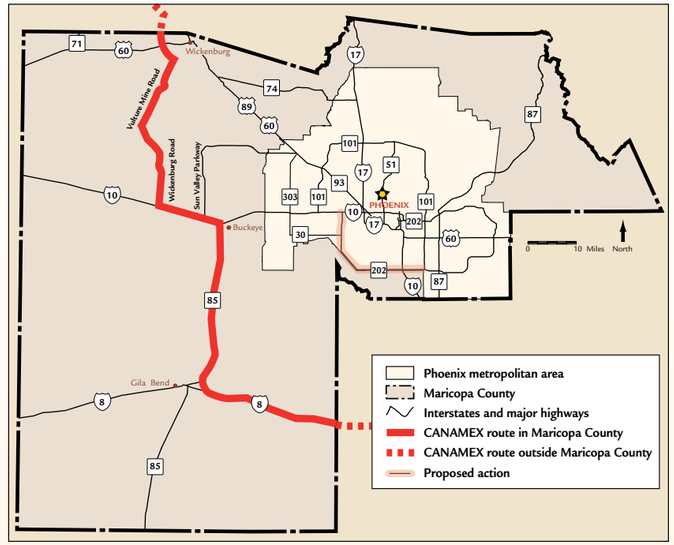
- Trucks are simply bigger and more visible than passenger vehicles.
- They attract and demand attention of other drivers because they are harder to maneuver and require more space.
- Their cargo can appear "threatening."
- They can "kick up" dirt and debris from pavement.
- They are louder than passenger vehicles.
- Because they burn diesel fuels, exhaust from trucks appears "dirtier" than exhaust from passenger vehicles.

Commercial trucks would use the proposed action. As with all other freeways in the MAG region, trucks would use it for the through-transport of freight, for transport to and from distribution centers, and for transport to support local commerce. And as with travel on all other freeways in the MAG region, the primary users of the proposed action would be automobiles. Latest vehicle classification counts available from ADOT for 2007 show passenger vehicles and other nontruck vehicles make up over 90 percent of all traffic on the freeway system, and it is expected these percentages would not vary with the proposed action.

Further, it is not expected that the entire 21 percent of through-traffic (by tonnage) using I-10 would divert from I-10 to use the proposed action. The trucking industry heavily depends on the efficient and fast movement of freight and on travel time savings. Trucking destinations in the Phoenix metropolitan area (either distribution centers or for local commerce) would require trucks to enter congested areas. Choosing to travel on the proposed action versus I-10 would not translate to any substantial travel time benefits (ADOT 2001). Therefore, it is expected that "true" through-truck traffic (not having to stop in the metropolitan area) would continue to use the faster, designated, and posted bypass system of I-8 and SR 85.

The CANAMEX Trade Corridor was defined by Congress in the 1995 National Highway Systems Designation Act (Public Law 104-59). The CANAMEX Corridor is a high-priority route traversing Arizona, Nevada, Utah, Idaho, and Montana, and linking to the Canadian province of Alberta and the Mexican states of Sonora, Sinaloa, Nayarit, and Jalisco. Development of the Corridor is advanced through a multistate coalition that includes public and private sector representatives selected by the governors of the five U.S. states.

Within the United States, the Corridor is intended to be a strategic investment in infrastructure and technology to advance a focused agenda to increase competitiveness in global trade, create jobs, and maximize economic potential within the five-state region. The transportation component calls for the development of a continuous four-lane roadway from Mexico, through the U.S. CANAMEX states, and into Canada.



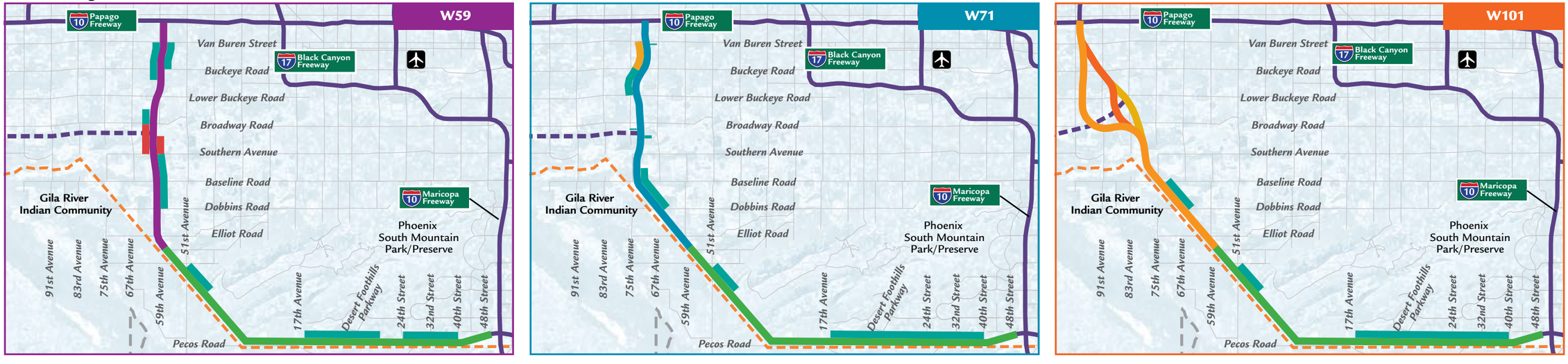
In the Maricopa County area, the ADOT- and MAG-preferred route for the CANAMEX Corridor is to follow I-10 from Tucson to I-8 near Casa Grande, I-8 west to SR 85 near Gila Bend, SR 85 north to I-10 northwest of Buckeye, I-10 west to Wickenburg Road, Wickenburg Road to Vulture Mine Road west of Wickenburg, and then connect with the planned US 93/US 60 Wickenburg Bypass. Recent studies completed by MAG, including the *Interstate 10/Hassayampa Valley Roadway Framework Study* (MAG 2008b) and the *Interstates 8 and 10/Hidden Valley Transportation Framework Study* (MAG 2009d) have further defined the long-range planning for the CANAMEX corridor in Arizona.

Some public concern has focused on 1) air pollution from trucks using the proposed CANAMEX Corridor that would reach the Study Area and 2) international truckers who would choose to use the proposed freeway to shorten their connection to the CANAMEX Corridor west of Phoenix. The proposed freeway would not offer shorter travel times. The CANAMEX Corridor's proposed routing avoids any congestion associated with the Phoenix metropolitan area.

Figure 3-39 Modeled Level of Service, Action Alternatives, 2035

2035 Morning LOS[a] E or F

2035 Evening LOS E or F



Existing freeway
Gila River Indian Community boundary
Maricopa County line
Proposed SR 30[b]

Duration of LOS E or F
greater than 3 hours
from 2 to 3 hours
greater than 0 hour and less than 2 hours

Western Section
W59 Alternative
W71 Alternative
W101 Alternative Western Option
W101 Alternative Central Option
W101 Alternative Eastern Option

Eastern Section
E1 Alternative

Approximate scale
1 3 miles

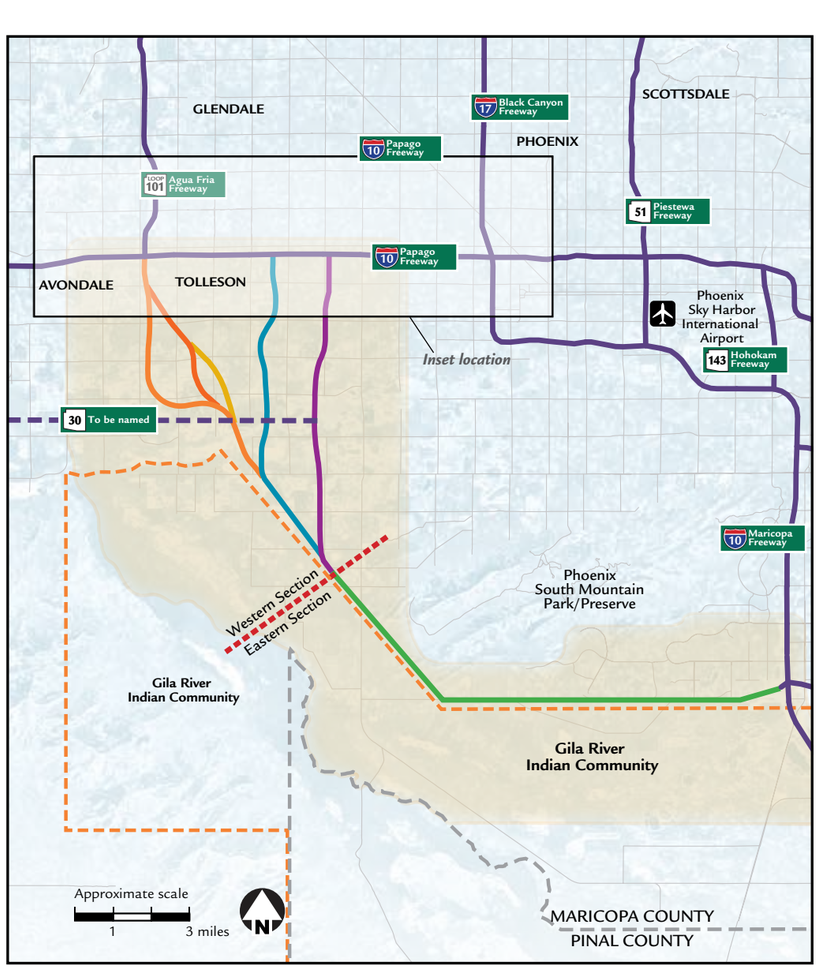
Note: Segments without a color operate at LOS D or better during the morning or evening commute.

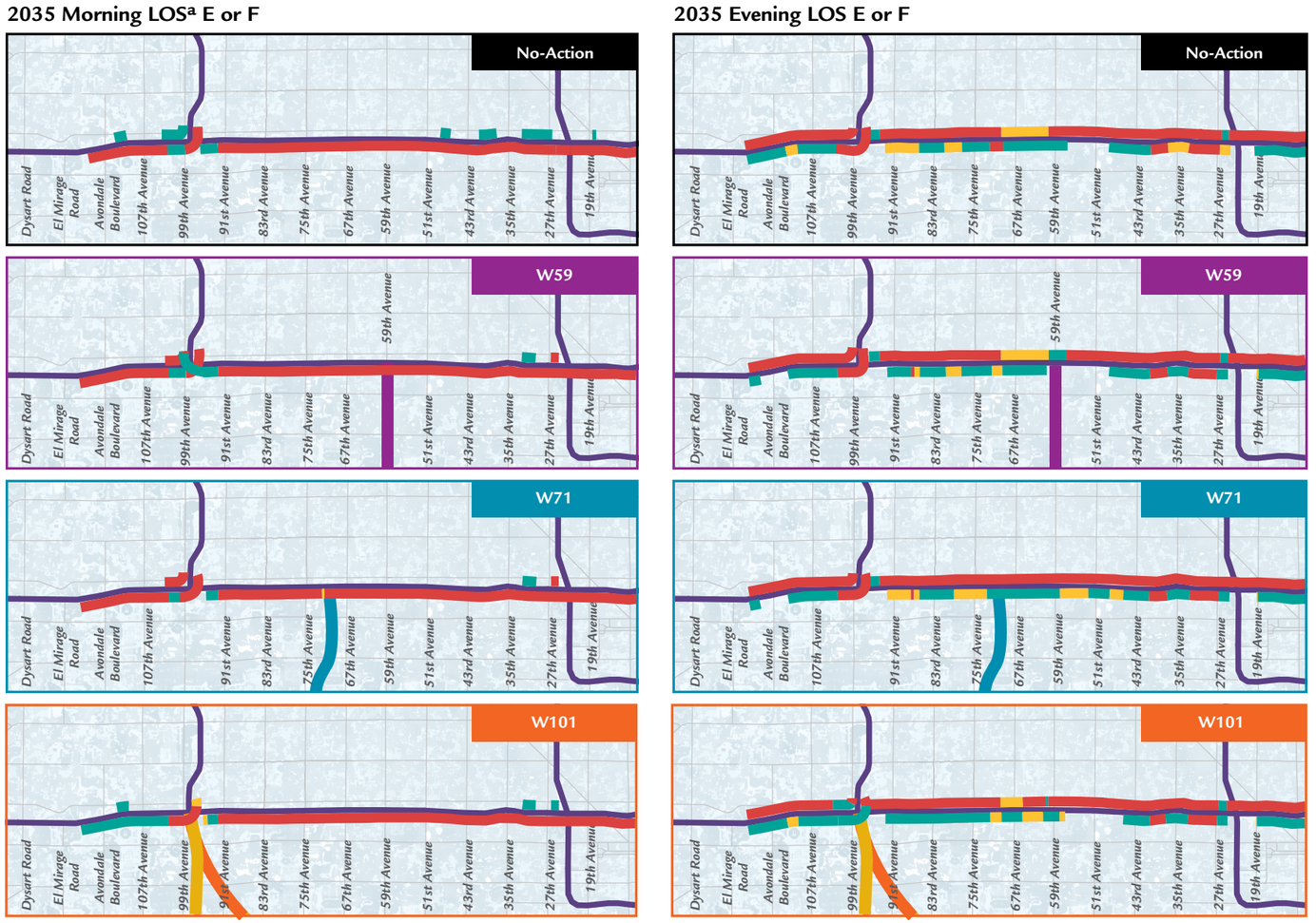
[a] level of service [b] The proposed State Route 30 connection would vary based on the Western Section alternative identified.

Source: Maricopa Association of Governments, 2013c; extrapolated analysis

The action alternatives would perform well during the morning commute. Traffic on short segments of the action alternatives would operate at LOS E or F during the evening commute in the Western and Eastern Sections. Figure 3-38 presents the corresponding daily traffic volumes of the segments for the action alternatives.

Figure 3-40 Modeled Level of Service, Interstate 10, Western Section, 2035





Study Area
Existing freeway
Gila River Indian Community boundary
Maricopa County line

Duration of LOS E or F
greater than 3 hours
from 2 and 3 hours
greater than 0 hour and less than 2 hours

Western Section
W59 Alternative
W71 Alternative
W101 Alternative Western Option
W101 Alternative Central Option
W101 Alternative Eastern Option

Eastern Section
E1 Alternative

Approximate scale
1
3 miles

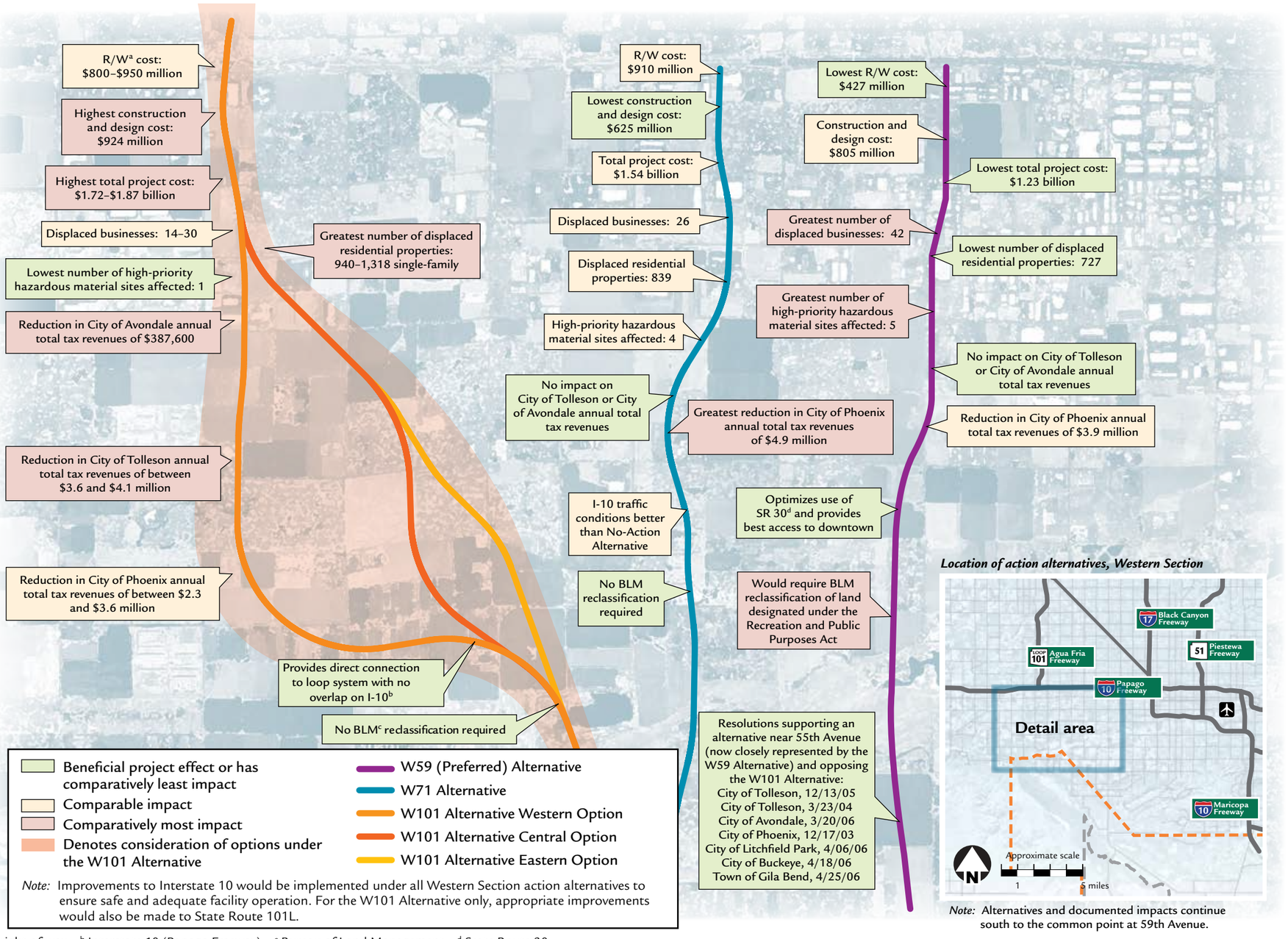
[a] level of service

Note: Segments without a color operate at LOS D or better during the morning or evening commute.

Source: Maricopa Association of Governments, 2013c; extrapolated analysis

For any of the action alternatives in the Western Section, the Interstate 10/Interstate 17 system traffic interchange would function as a "bottleneck," causing traffic to back up to the west into the Study Area. The Highway Capacity Manual *(Transportation Research Board 2000), which provides criteria for determining levels of service (LOS), states that LOS E or F occurs when more than approximately 2,100 vehicles per hour per lane are present on a freeway.*

Figure 3-41 Comparative Analysis, Action Alternatives, Western Section



[a] right-of-way [b] Interstate 10 (Papago Freeway) [c] Bureau of Land Management [d] State Route 30

A comprehensive, multidisciplinary approach to identifying a Preferred Alternative in the Western Section led the Arizona Department of Transportation and the Federal Highway Administration to a determination that balanced overall transportation needs; consistency with regional and long-range planning goals; environmental, economic, and societal impacts; operational differences; estimated costs; regional support; and public input.

since project inception; however, despite those efforts, ADOT and FHWA have determined that an alternative alignment on Community land is not feasible. (Issues relevant to Community coordination are presented in Chapter 2, *Gila River Indian Community Coordination*.)

- Identification of the W55 Alternative as the preliminary preferred alternative in the Western Section of the corridor would not preclude the No-Action Alternative from being the Selected Alternative later in the EIS process.
- Identification of the W55 Alternative as the preliminary preferred alternative would not represent a final determination by ADOT and FHWA.

In identifying the preliminary preferred alternative, ADOT concluded the W55 Alternative would best balance fiscal responsibility, regional mobility needs, community sensitivity, and additional considerations such as consistency with long-range planning goals, economic and environmental impacts, and public and agency input. The SMCAT, formed specifically to evaluate the proposed action, was empowered to consider many of the same parameters as ADOT examined and, in doing so, to recommend a preliminary preferred alternative to ADOT for its consideration. As presented in Chapter 6, *Comments and Coordination*, the SMCAT evaluation resulted in its recommending the W101 Alternative. In doing so, the SMCAT emphasized the importance of addressing long-term regional mobility issues, but also expressed concern regarding possible impacts on community character and cohesion. ADOT shared SMCAT concerns about both long-term regional mobility and community sensitivity. These concerns, when combined with ADOT's concern for potential reduction in community services, in Tolleson in particular, ultimately contributed to ADOT's 2006 identification of the W55 Alternative—and not the W101 Alternative—as the preliminary preferred alternative. ADOT's determination was reached after:

- consideration of overall transportation needs in the region as identified in the RTP as adopted by Maricopa County voters
- consideration of consistency with clearly established long-range regional planning goals
- comparison of environmental and societal impacts expected from each of the alternatives and assessment of the ability to mitigate impacts
- a comparative examination of operational performance among the three action alternatives in the Western Section
- estimation of project costs in the context of fiscal responsibility to overall regional transportation infrastructure costs
- consideration of more than 4 years of public and agency input, including comments received at more than 200 formal and informal information exchanges with the public (through public meetings, the project Web site, and project telephone log, as well as recognition of resolutions passed by local communities and the SMCAT recommendation)

In 2009, MAG suggested that a portion of the W55 Alternative could be shifted west onto 59th Avenue to take advantage of the existing R/W and reduce cost and business displacements. This shifted alignment (called the W59 Alternative) would connect to I-10 (Papago Freeway) at an existing service traffic interchange. After further analysis was conducted related to alignment, traffic operations, construction impacts, and environmental considerations, the following advantages and disadvantages were identified:

- would enable better I-10 traffic performance than would be achievable with the W55 Alternative
- would offer certain design advantages over the W55 Alternative
- would be preferred from a security perspective because it would be farther from the petroleum storage facilities at 51st Avenue and Van Buren Street
- would not reconstruct the 51st Avenue Bridge at I-10
- would require the relocation of fewer businesses
- would require the relocation of utilities along 59th Avenue
- would cause increased disruption of traffic during construction along 59th Avenue
- would eliminate direct access from I-10 to 59th Avenue and vice versa (indirect access would be provided by a system of access roads connecting to 51st and 67th avenues)
- would require the relocation of more single-family residences and two apartment complexes

Believing that the advantages outweighed the disadvantages, ADOT and FHWA identified the W59 Alternative as the preliminary preferred alternative in the Western Section. The process and factors leading to identification of the W59 Alternative as the preliminary preferred alternative in the Western Section mirror those considered by ADOT and FHWA in 2006 to identify the W55 Alternative as the preliminary preferred alternative.

In preparing the FEIS for the proposed action, ADOT and FHWA identified the W59 Alternative as the Preferred Alternative in the Western Section and reconfirmed the following:

- Identification of the W59 Alternative as the Preferred Alternative in the Western Section does not preclude the No-Action Alternative from being the Selected Alternative later in the EIS process.
- The issues and factors leading ADOT and FHWA to identify the W59 Alternative as the Preferred Alternative remain applicable and well-founded. (However, identification of the Preferred Alternative in the FEIS does not represent a final determination by ADOT and FHWA; identification of a Preferred Alternative could change.)

In undertaking the process leading to this identification, ADOT and FHWA compared performance between the W59, W71, and W101 Alternatives. This process is described below.

When comparing action alternatives in the Western Section, the W71 Alternative was considered the least desirable of the three action alternatives because:

- The duration and extent of congested conditions on I-10 would be the least desirable of the alternatives considered.

- Residential impacts and relocations would be high (up to 839 properties affected).
- Regional and public support is lacking.
- The presence of an alignment is not consistent with local land use plans dating back to the mid-1980s.

ADOT continued the evaluation of the Western Section action alternatives by conducting a comparative analysis of the W59 and W101 Alternatives, as summarized below.

Overall Transportation Needs

- The W59 Alternative would better link the southern areas of the region with the central metropolitan area and would provide an alternative route to I-10 for regional connectivity.
- The W59 Alternative would be more consistent with local and regional transportation plans, including the RTP.
- Northbound and southbound motorists using the W101 Alternative would have a direct connection to SR 101L (Agua Fria Freeway) and would not have to travel on I-10 (Papago Freeway). This would complete a true loop around the Phoenix metropolitan area.
- The W101 Alternative would need additional widening improvements to SR 101L (Agua Fria Freeway).
- The W59 Alternative would need additional widening improvements to I-10 (Papago Freeway).

Consistency with Regional and Long-range Planning Goals

- The W59 Alternative would result in less land being converted to freeway use, thereby optimizing opportunities for planned development.
- Since the mid-1980s, City of Phoenix land use planning has progressed in recognition of the planned location of the proposed freeway near the W59 Alternative. Related land use planning for the Phoenix Villages of Estrella and Laveen has been consistent with the City's long-range land use planning.
- The location of the Salt River crossing of the W59 Alternative would be consistent with the Rio Salado Oeste joint use project planned by the City of Phoenix, USACE, and FCDMC.
- The W59 Alternative would avoid impacts on the planned expansion of the City of Tolleson wastewater treatment facility.

Environmental and Societal Impacts

- The W59 Alternative would result in fewer residential displacements.
- The W59 Alternative would have a nominal effect on the local tax base in Phoenix. It would result in less impact on the local tax bases in Tolleson and Avondale.
- Conversely, the W101 Alternative would have a severe impact on the City of Tolleson's tax base and would lead to a reduction in City-provided services.
- R/W for the W101 Alternative would eliminate a substantial portion of the remaining developable land in Tolleson. Tolleson is landlocked by Phoenix and Avondale, with no opportunity for future expansion of its city limits.

Operational Differences

- The W101 Alternative would provide a direct connection to SR 101L (Agua Fria Freeway), thus completing the loop system without any overlap on I-10.
- The W59 Alternative would provide more direct access to downtown Phoenix.
- The W101 Alternative would provide better access to destinations west and north of downtown Phoenix.
- The W59 Alternative would optimize the long-term system of freeways planned in the southwestern portion of metropolitan Phoenix. However, these benefits would not be realized until SR 30 and SR 303L, south of I-10, are completed.
- The W59 Alternative would avoid the skewed arterial street interchange configurations that would be needed for the W101 Alternative to connect with the planned SR 30, ARS, and several arterial streets.

Estimated Costs

- The total cost of the W59 Alternative would be $490 million to $640 million less than the W101 Alternative (see the section, *Planning-level Cost Estimates*, on page 3-59).

Regional Support and Public Input

- Resolutions passed by the City/Town Councils of Avondale, Buckeye, Gila Bend, Goodyear, Litchfield Park, Phoenix, and Tolleson supported an alternative near 55th Avenue (now closely represented by the W59 Alternative) and opposed the W101 Alternative.
- Public input was split in support of either the W55 (now closely represented by the W59 Alternative) or W101 Alternative. The SMCAT supported the W101 Alternative, but expressed concern about its impacts on the communities surrounding the proposed freeway.

After considering the above points, ADOT, with concurrence from FHWA, identified the W59 Alternative as its Preferred Alternative in the Western Section.

Identification of a Preferred Alternative in the Eastern Section (E1 Alternative)

The E1 Alternative is the only action alternative developed for the Eastern Section. ADOT and FHWA sought permission to study alternatives in detail on Community land, but the Community decided such alternatives would not be in the Community's best interest (see Chapter 2, *Gila River Indian Community Coordination*). Therefore, ADOT, with concurrence from FHWA, identified the E1 Alternative as its Preferred Alternative in the Eastern Section. In reaching its determination, ADOT sought to balance its responsibilities to address regional mobility needs while being fiscally responsible and sensitive to local communities.

CONCLUSIONS

Upon confirming the purpose and need for the proposed action, a multidisciplinary process was undertaken to identify a range of reasonable alternatives to be studied in detail in the FEIS. The process involved identifying, comparatively screening, and eliminating alternatives based on:

- input from the public
- a comparison of modal choices
- a multidisciplinary set of criteria evenly applied
- the historical context of the proposed action
- projected conditions with and without the alternatives being considered

Prior to issuance of the FEIS, the alternatives development and screening process was reviewed considering changes in existing and forecast population, housing, employment, and traffic. The alternatives development and screening process was validated. As a result of the alternatives development and screening process, the following conclusions were reached:

- The geographic limits of the proposed action serve as logical termini, do not constrict meaningful consideration of other reasonably foreseeable alternatives, permit study of alternatives of a sufficient length, and allow for independent utility of the proposed action.
- The three identified action alternatives in the Western Section (W59, W71, and W101), one action alternative in the Eastern Section (E1), and the No-Action Alternative represent a range of reasonable alternatives that were the subject of detailed study in the FEIS.

The design concepts of each action alternative, as presented in this chapter, were developed to a level to facilitate meaningful comparison of operational performance and assessment of impacts.

If new alternatives are presented for ADOT/FHWA consideration prior to the issuance of a ROD, the agencies will determine whether those alternatives are reasonable and should be considered in the EIS process.

ADOT and FHWA have identified the W59 Alternative as the Preferred Alternative in the Western Section and the E1 Alternative as the Preferred Alternative in the Eastern Section. The identification—while not a final determination, and one that can be changed—was based on the data and conclusions presented throughout the FEIS. The identification of the W59 Alternative and E1 Alternative as the Preferred Alternatives, in summary, rests on a balanced consideration of overall transportation needs; consistency with regional and long-range planning goals; environmental, economic, and societal impacts; operational differences; estimated costs; and regional support and public inputs.